

# ***NAVY MEDICINE***

March-April 1995



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**COVER:** On 21 Dec 1994, VADM Donald Hagen, Surgeon General of the Navy, presented Pope John Paul II with a Bureau of Medicine and Surgery plaque while on a courtesy call to the Vatican (see page 1). Photo courtesy of the Vatican.



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# The Pope Blesses Navy Medicine

“I give my blessing to all the men and women of U.S. Navy medicine,” said Pope John Paul II during a courtesy call by VADM Donald F. Hagen, MC, Surgeon General of the Navy, at the Vatican on 21 Dec 1994.

In a moving ceremony, the Pope accepted a Bureau of Medicine and Surgery plaque from Hagen and thanked members of the medical community for assisting those in need throughout the world. “It was an honor and a thrill to meet with the Pope,” said Hagen. “And it is equally an honor and a thrill to convey his blessings to the fine men and women of Navy medicine, especially during this holiest of holidays.”

Hagen stopped at the Vatican after a short visit with members of Fleet Hospital Five in Zagreb, Croatia. Accompanying him in spreading holiday cheer throughout the hospital, which serves the United Nations Protection force in Croatia, were BUMED Assistant Chief for Reserve Affairs, RADM James Fowler, MC, and the Deputy Assistant Secretary of the Navy for Reserve Affairs, Mr. Wade Sanders. While there, Fowler and Sanders met with some of the 11 naval reservists who are among the more than 200 medical staff, Seabees, and Marine members in Zagreb.

Fleet Hospital Five took over staffing of the hospital in September from Fleet Hospital Six, which had staffed the hospital since March 1994.

—BUMED Public Affairs

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#### Department Rounds

# Japan's *Rescue Seagull* 80 Flies U.S. Sailor to Hospital

A case of appendicitis can be critical to anyone, but when it hits a sailor under way, serious conditions are intensified, especially when limited medical treatment is available.

Recently Fire Controllman Third Class David Henderson, stationed on board USS *California* (CGN-36), was diagnosed with appendicitis while under way. Fast action and joint U.S. Navy and Japanese Maritime Self Defense Force (JMSDF) cooperation prevented a potentially serious medical emergency.

*California*, along with elements of the JMSDF, including two Shin

Meiwa US-1A SAR Amphibious aircraft, one HSS-2B ASW helicopter, and one JMSDF P-3 aircraft, performed a joint at-sea personnel transfer by transporting Henderson to Naval Air Facility Atsugi, Japan, and later to U.S. Naval Hospital Yokosuka, Japan, by helicopter.

According to a spokesman for the USS *Independence* Battle Group commander (CTF 70), this is the first time an at-sea personnel transfer has been conducted between U.S. and Japanese forces with the use of seaplanes.

Through coordination between the battle group and elements of its task force, *California* successfully



Opposite page: *Rescue Seagull 80* prepares to pick up patient at sea. Below: LCDR Lydia Hernandez checks in on FC3 David Henderson.



Y. Watanabe, USNH Yokosuka

medevaced Petty Officer Henderson. JMSDF was contacted by CTF 70 in order to arrange a joint medevac effort.

Meanwhile, in *California*'s medical department, LT Paul F. Pizzella, MC, the ship's medical officer, contacted the duty surgeon at U.S. Naval Hospital Yokosuka via ship-to-shore radio. Hospital emergency staff personnel were given information regarding the incoming patient, and in less than 3 hours after the initial call for assistance, the JMSDF seaplane *Rescue Seagull 80* rendezvoused with *California*, 130 miles offshore.

"I take my hat off to the team on board," said LCDR Lydia Hernandez, Henderson's surgeon. "They told me that they could get him here at sunrise; I told them to expedite it, and he was here in 5 hours."

The seaplane's 13-man crew, commanded by LCDR Toshiichi Domyo of JMSDF, landed 200 yards off the port beam of *California* and then launched a small rubber boat to transfer Henderson and HM3 Scott Youngerman, one of the ship's corpsmen, to the seaplane.

Within 30 minutes, Petty Officers Henderson and Youngerman were safely on board the plane and headed for Naval Air Station Atsugi. They were transported to U.S. Naval Hospital Yokosuka via helicopter.

According to LCDR Hernandez, "They (the *Seagull* crew) provided very efficient service, and the medical team on board demonstrated very good diagnostic skills. I couldn't have asked for better. By the time he got here he was well hydrated, had antibiotics on board, and was ready

to roll. We went straight from the ER to the OR."

Henderson, of Reno, NV, said, "They provided really good care on the ship. They diagnosed me correctly. When I got here they opened me up and found I did have appendicitis and gave me an appendectomy. Dr. Hernandez was really good. She's come and visited me all through my recovery here. The care provided at this hospital has been excellent. I'd rate it as superior.

"I feel that it was really good cooperation between the Japanese Navy and the U.S. Navy," explained Petty Officer Henderson, 2 days after his surgery. "It was quick. The Japan Self-Defense Force was very precise, clean, and very polite, too."

CAPT Ray A. Wallace, *California*'s commanding officer, presented LCDR Domyo with a ship's ballcap, and provided a round of cold sodas for the *Seagull 80* crew, a small token of thanks for their speedy and professional assistance in what could have been a life-threatening situation. □

—Public Affairs Office, Commander U.S. Naval Forces, Japan.

# Reengineering Medical Care

**O**n 3 Nov 1994, Naval Hospital Charleston, SC, held a ceremony celebrating the grand opening of the Primary Care Group Practice Teams and the Primary Care Center.

Exactly a month before, Naval Hospital Charleston entered a new era of health care delivery with the establishment of three multispecialty Primary Care Group Practice Teams. The transition to Teams signals the implementation of a new strategic plan which focuses on improving beneficiary access to health care and maintaining the high quality of health care.

The reengineering involved the combining of five clinical departments (family practice, internal medicine, pediatrics, obstetrics/gynecology, and general surgery) and the establishment of three multispecialty Teams. Each Team is staffed with at least one provider from each of the five clinical departments, with each Team having approximately 10 physicians per Team. In addition, two independent duty corpsmen and a nurse practitioner are included in each Team as physician extenders.

Another part of the hospital reengineering is the new Primary Care Center (PCC). The PCC replaced the existing Ambulatory Care Clinic on 1 Nov. Using a family practice provider approach, the PCC in combination with the Teams will treat an assigned group of patients, allowing greater continuity of care for the individual patient. The military beneficiary is placed with a team of providers, who will deliver all primary care and will make referrals for specialty care.

Assignment to a Primary Care Team improves access, allows continuity of care and medical specialty referrals, and ensures the appropriate level of care for beneficiaries. Medical care in the civilian community is moving to assignment-based primary care for the same reasons.

Beneficiaries will be automatically assigned to a Primary Care Team if they are currently being followed by our family practice providers, if they routinely used the old Acute Care Clinic, and if they are being followed by the providers at the Naval Weapons Station Branch Medical Clinic. Active duty members and their family members will be assigned, along with our CHAMPUS-eligible beneficiaries who are currently being followed by a provider. As space allows, as many beneficiaries as possible will be assigned to one of the three Primary Care Teams,

the Naval Weapons Station Family Practice Clinic (NWSFP), or the PCC. Assignment does not depend on branch of service. For example, Air Force personnel who routinely use the Naval Hospital will be eligible to be assigned to a Team, NWSFP, or the PCC. The 437th Medical Group on the Charleston Air Force Base is looking at how to assign beneficiaries who routinely use the Air Force Clinic.

The Naval Hospital assignment process began several months ago. In August 1994 a questionnaire went out to beneficiaries in selected zip codes asking if they desired to be empaneled (assigned to a Primary Care Team). The returned questionnaires indicate a great deal of interest in the primary care assignment system. The majority of Naval Hospital Charleston beneficiaries, who have been assigned to a primary care location, will be notified via letter within the next 45 days. Assignment will be an ongoing process as beneficiaries enter and leave the Charleston area.

There are three ways to sign up for a Primary Care Team. Beneficiaries can fill out the questionnaires which have been sent to them in the mail, they can fill out an assignment form which is available at most Charleston military medical clinics, or they can call the Alternate Health Care Department. Assignment will be centered on active duty members and their families, and will be available to retirees and their family members on a space-available basis.

Assignment will be based on the patient's past medical needs and on Team availability. Since assignment will be recorded in the Naval Hospital's central computer system, beneficiaries can verify their assignment by calling the Alternate Health Care Department. Patients can also disenroll themselves by calling the Alternate Health Care Department. Whether or not they have been assigned to a Primary Care Team, NWSFP, or the PCC, beneficiaries will still be able to use the Naval Hospital ER, the NAVCARE clinic, or the CAMCHAS (Catchment Area Management, Charleston) network of providers.

These Primary Care Teams, the NWSFP, the 437th Medical Group, and the PCC will be used in conjunction with the Naval Hospital medical care specialty clinics, the NAVCARE clinic, the CAMCHAS network of CHAMPUS providers, and the hospital emergency room to provide comprehensive primary care to our beneficiaries. Together, these primary care locations become another part of the Naval Hospital's continuing efforts to meet the health care needs of the military beneficiaries in the Charleston area. □

—Public Affairs Office, Naval Hospital, Charleston, SC.



# Naval Hospital Camp Lejeune Promotes USMC Wellness

Evidence continues to mount showing that well-designed worksite health promotion programs contribute to reductions in absenteeism, increases in productivity, health care cost containment, and improved recruitment, retention, and employee morale. Although preventive measures are widely embraced by Navy medicine, the Marines at Camp Lejeune, NC, are just getting their first "dose."

Paralleling the Nation's Prevention Agenda, Healthy People 2000, and the Navy's OPNAVINST 6100.2, Health Promotion Program, is the Marine Corps' Semper Fit 2000. Fully recognizing the benefits of effective worksite wellness programs, the Commandant has mandated heightened awareness and education on various *program elements* through the issuance of Marine Corps Order 6200.4. These program elements include tobacco cessation, back injury/muscle strain prevention, and stress management.

In support of Semper Fit 2000, CAPT Michael Cowan, MC, commanding officer at Naval Hospital Camp Lejeune, recently commissioned a new Health Promotion Department which delivers "Train the Trainer" workshops to Marine Training Officers/SNCO. Upon completion of these workshops, Marines return to their units with ready-to-use lesson training plans (designed specifically for the Marine Corps) and expertise on how to implement their programs. "We're simply packaging preventive medicine education—in Marine Corps terms..." says Cowan.

To promote the program, the Health Promotion Department has teamed-up with Marine Corps Base specialists in the Training Support Division. Together, they have established a cost-effective video series for "Command

Cable" TV. The series is viewed by troops in (garrison) training, patients in clinic waiting areas, and families aboard base housing. Additionally, a Video Lending Library and an Audio Awareness System have been established.

One of the most obvious *leading causes* of lost productivity for the Marines at Camp Lejeune is orthopaedic injury and muscle strain. To supplement the efforts of the Physical Therapy and Orthopaedic Clinics, the new Sports Medicine Clinic will provide ongoing education, assessment, and rehabilitation for the pool of 43,000 marines aboard Lejeune. The establishment of this clinic (within an MWR gymnasium) demonstrates the success of collaborative efforts between the hospital and Marine Corps Base.

To be effective, health promotion programs need to demonstrate the actual ability to reduce the burden of disease, injury, and disability within a community. To this end, department head LT Amy Lindberg says, "Our department plans to implement a measurable, scientifically-based model of health promotion. Until then, we are using the DOD World Wide Military Survey Results as the baseline for prioritizing our efforts." Ultimately, the Lejeune focus will expand to include the entire spectrum of beneficiaries but, according to Lindberg, "our initial goal is to support the USMC Wellness Initiative, for in doing this, Navy medicine and the Marine Corps receive benefits. It's Win-Win!" □

—Public Affairs Office, Naval Hospital, Camp Lejeune, NC.

## Features



The three-axis tilt-rotation chair . . .

# Training Program for the Prevention of Motion Sickness

David L. Matson, Ph.D.  
CDR Daniel L. Dolgin, MSC, USN

**M**otion sickness and related illnesses impair the performance of naval personnel and often result in a complete lack of performance. Data (from the most recent 15-month period available) show that, on 14 ships ranging from nuclear-powered aircraft carriers to repair ships, enlisted personnel incapacitated due to motion sickness cost the Navy \$135,000 in lost man-days (calculated by multiplying the average pay per rate times the number of man-days lost at the rate, as reported by the Naval Medical Information Management Center). This is only the tip of the motion sickness iceberg because it only reflects enlisted personnel, and only reflects such severe

cases that personnel were completely incapacitated for days at a time. It does not reflect the attendant costs for medical care, nor does it reflect the much greater incidence of bouts of motion sickness that incapacitate an individual for periods of hours, rather than days. Motion-produced vestibular stimulation also greatly affects sleep, often inducing severe fatigue that is of concern when planning for sustained operations.

Several strategies for overcoming motion sickness have evolved: pharmacological intervention, personnel selection of those with the "right stuff," desensitization training, and cognitive-behavioral intervention. Of course, the selection of the optimal

strategy must be determined by economical, medical, and managerial concerns. While desensitization and biofeedback training are somewhat effective in reducing the susceptibility to the deleterious effects of motion, the equipment used tends to be complex and costly. Pharmaceuticals are not universally acceptable because of the various side effects, which are often debilitating and can produce performance decrements. Elimination of personnel susceptible to motion sickness often works against efficient use of people. Hence, the recent increased interest in a cognitive intervention program as an efficient and inexpensive prophylaxis against motion sickness.



Traditional desensitization programs have not worked well for motion sickness for two reasons. First, motion conditions do not easily generalize from one environment to another. Second, susceptible individuals, particularly in career-related situations, invariably have an anxiety overlay that confounds the problem. There is a large body of anecdotal evidence for a cognitive overlay that can modify the threshold for motion sickness. For example, in life-or-death situations under high sea-states one hears fewer reports of motion sickness than under similar sea conditions with routine duties. At the Naval Biodynamics Laboratory (NBDL) a training program was developed that works better than traditional desensitization training. The training program combines cognitive training (confidence-building to treat anxiety) and behavioral desensitization to motion. Experiences with Royal Air Force pilot trainees, high achievers with high performance anxiety, indicate that anxiety is a potent factor

that lowers a person's normal threshold for motion sickness by sensitizing them to the early onset of symptoms.(1)

Research at NBDL supports the contention that the cognitive-behavioral treatment method provides significant therapeutic support for individuals who are susceptible to motion sickness. It is not the cognitive nor the desensitization component alone that dramatically increases resistance to motion sickness, but the combination that is most effective. The cognitive training is directed at reducing anxiety in motion environments and is intended primarily as an intervention for fleet or aviation personnel identified as having a chronic problem with motion sickness. This is done in a program of controlled exposures to increasingly provocative motion conditions in the motion-desensitization chair. The training consists of 8-10 hours of a series of controlled exposures, scheduled over a 4-week period, coupled with a regimen of confidence-building counsel-

ing sessions. Controlled motion exposures are produced by a three-axis tilt-rotation chair. Designed and built at NBDL, the chair can tilt independently in the roll and pitch axes while rotating up to 20 revolutions per minute. In addition, a semicircular fiberglass shell can be placed in front of the subject. Independently rotating vertical lines can be projected on the shell interior to produce visual sensations of rotation. The risks or discomforts are minimal. The benefit is a profound decrease in susceptibility to motion sickness. The program has already returned pilots to active duty who were previously permanently grounded due to chronic motion sickness.(1)

As a result of this work, a Mobile Biodynamics Laboratory has been constructed. This is a portable platform (trailer) for the Cognitive-Behavioral Motion Desensitization Training Program. It is available from the Naval Biodynamics Laboratory as an intervention and management strategy for Navy or Marine Corps personnel exposed to motion environments. Besides serving as a training platform, the chair assembly also can serve as an ideal site to conduct advanced studies. For additional information, Dr. Matson can be contacted at Commercial 504-257-3980. CDR Dolgin can be contacted at DSN 485-2394 or Commercial 504-257-5146.

#### Reference

Dobie TG, May JG, Fisher WD, Bologna NB. An evaluation of cognitive-behavioral therapy for training resistance to visually-induced motion sickness. *Aviat Space Environ Med.* 1989;60:307-314. □

Dr. Matson is a research psychologist/neurophysiologist at the Naval Biodynamics Laboratory, New Orleans, LA. CDR Dolgin is head of the Research Department at the same facility.



... and its trailer



# Flight Nurse at Iwo

**K**athryn Van Wagner was 23 when she joined the Navy in 1944. Her last civilian job had been as an assistant supervisor of a suite of operating rooms at the Jersey City Medical Center. At the time local factories had already switched from manufacturing civilian goods to aircraft parts and other war materiel and industrial accidents were common. As a result, the young nurse got quite a bit of experience helping treat serious trauma. That education would put her in good stead when she confronted battlefield injuries for the first time.

ENS Van Wagner was stationed at the Naval Air Station, Norfolk, VA, when she volunteered to become a member of the first class of 12 flight nurses about to undergo training at Alameda, CA. "I don't think they knew what to train us for because they

didn't know what we were getting into," she recalls.

Van Wagner and fellow graduates of this first class would be the first women to evacuate wounded by air from an active battlefield in the Pacific.

In order to qualify for flight nurse, I had to swim the length of a swimming pool in green coveralls and boots which I managed to do and then get out of the pool on a free-swinging rope ladder. However, I had 12 years of acrobatics and ballet and toe-dancing lessons so I was very muscular. Otherwise, I would not have been able to do it. It was quite a feat.

We used the Link Trainer. We learned about artificial horizon, direction, altitude. We were also instructed how to utilize the four Mark VII life rafts which were on each

plane, and reminded of the dangers of positive air pressure on chest wounds which have negative air pressure. They taught us basic first aid, perhaps a little more than basic. I knew a lot of it already because of my operating room experience. But at that time, nurses didn't do what they do today. Nurses really were very low on the totem pole in the medical hierarchy and they were trying to bring us up a rank by giving us certain information we might need in pressure dressings and that sort of thing.

I don't remember much of the other training until we were assigned to Guam. We were outfitted in flight nurse's uniforms—green elastique, light weight pants, gray cotton dresses and pants. Elastique was a type of material that fit beautifully. It was a heavy wool that was able to stretch. It had a diagonal zipper going from upper right to lower left. We had gray cotton uniforms issued as well as flight boots and flight jackets with our names and wings on them. These jackets looked like elephant skin. It was a very heavy, crinkly leather. This was the gear we were sent with.

The 12 of us really felt very special and were treated very special. I must say that in my entire Navy career I was always afforded respect. There was no wink with a salute that you might expect from a sailor or a marine for a young woman in a Navy uniform.

We flew to Honolulu, then to Johnston Island, to Kwajalein Island, and then landed at Guam. When we got there they were not prepared for us at all. They quickly set up a tent, brought in some cots and barbed wire.



The first class of Navy flight nurses at Guam in April 1945. Kathryn Van Wagner is at the extreme left.

Photos from BUMED Archives



Our compound was enclosed in rows and rows of barbed wire at Agaña air base which was close to the cliffs and not far from the B-29 landing strip. In order for a nurse to leave the compound you had to be accompanied by two men both wearing sidearms.

My flights to Iwo Jima were on the 8th, 12th, 16th, and 18th of March 1945. We flew in what the Navy designated an R-4D. It was a C-47. The C-47s had huge auxiliary gas tanks in them. They were as large as four water heaters and took up an enormous space in the cabin. These two tanks were right behind the pilot's cockpit and then began the area where we had our patients. There was just a corpsman and I on these flights. His name was Emerson Brown and he was a very big man. He and I worked exceptionally well together. I had never heard of Iwo Jima. We knew we were going to an island where a airstrip had just been established that would support the weight of an R-4D. Perhaps they said Iwo Jima, but at that time my geography wasn't good enough to know where that was.

That very first flight was unreal. As we approached the island I stood behind the pilot, looked down and saw a destroyer blown up. We could see munitions from our ships on one side of the island going over to the other side of the island. It was like an umbrella. And there was enemy fire going out and hitting the ships—the destroyers and the LSTs. I just couldn't believe I was seeing what I was actually seeing.

I was never afraid. At 23 one doesn't think of one's mortality. Nothing could happen to me or any-

one I knew. Anyway, we came in under that barrage and landed on the beach. The fighting was going on very close to the plane. On one of my missions when I was standing next to the plane, a marine handed me a trench mortar and said, "Do you want to shoot the Japanese?" And I said, "Sure." So I just dropped the mortar round in the slot and it shot right over a hill.

The medics brought the wounded men to the beach and put them in a tent. I was given some kind of run-down on the types of wounds the men had. Everything was done very quickly; they wanted to get us out of there very fast. So I really didn't know exactly what I had. We walked down these rows of men. Someone said, "These 24 will be on your plane." The auxiliary tanks took up the space

of at least eight or more litters so we could only carry 24 patients in litters.

We had on board a huge wooden box with whole blood and medications, mostly sulfa drugs. Although penicillin was in existence at that time, I only knew it at St. Albans [Naval Hospital] where it was given by injection every three hours in doses of about 50,000 units per cc. Now it's given in the millions. But all we had was just the sulfa drugs in powder form.

As soon as we took off, the corpsman and I made very quick rounds to see what we had. The patients had the original bandages that the medics had applied where the men were injured. That's the condition we received them in when they got to the beach.

When I got them they were not stabilized. Some of them had injuries

only 20 minutes old. The corpsmen were bringing them in in droves. There were some doctors there who took a quick look to decide whether the injured were going on this flight or the next one. And those men were dirty. Iwo Jima was all black sand and dust. When the propellers kicked it all up, the wounded were bandaged with that dust in their dressings. I knew I would have these men from 6 to 8 hours. When I got them I attempted to clean out the wounds and sprinkle them with sulfa powder and rebandage them.

As I took off each of the bandages, I realized I had more than I could handle. For many of the men, there was little I could do except to sprinkle sulfa powder into the wounds and rebandage them. I would put pressure dressings on if necessary.

I remember making Montgomery straps. A Montgomery strap is a wide piece of adhesive tape folded over on itself. You would poke three holes in it and you could make a kind of corset with a set of these. In the holes you poked the bandage to make a string to tie it tight to use for an abdominal wound, for example. They made dressing changes more efficient and quicker.

I also splinted and gave morphine with morphine syrettes. A syrette looks like a tiny tube of ophthalmic ointment. Each syrette carried a quarter or one-half grain of morphine, and each had its own needle. I carried a handful of syrettes in my pocket. You injected and then squeezed out the contents. If I wanted to give less than the quarter grain, I had to guess.

Guam was our home base. Between flights we worked in tents at the base hospital there, on many of the same men we had evacuated. This was before they got the quonset huts up.

On all the flights the space be-

tween the litters was very narrow so the men couldn't lift their heads to look at their feet. If I were doing a dressing on a foot, they would say, "How does it look, lieutenant?" If I was looking at a complete traumatic amputation I would say, "Well, it's pretty badly messed up but fortunately they have inducted the best doctors that we have and they're all in Guam waiting for you." And then I'd go on to the next man.

It happened several times that I was absolutely shocked when I took the dressings off and realized what I was looking at. When these men asked me about their condition, I became an actress no matter what they asked me. I would look and then say, "Well, it's a mess but it can be fixed," knowing full well that nothing could be done. My knowledge of anatomy and physiology was very good and my operating room experience allowed me to picture what was going to happen in the operating room when these men got there.

I remember one patient who had dived into a foxhole. He broke his jaw and clavicle, and ended up with his rear end up. His buttocks were peppered with shrapnel. I couldn't lie him on his stomach. I couldn't lie him on his back or his side. I couldn't make him comfortable. For his fractured clavicle, which was an open fracture with bone protruding from the skin, I rolled up a jacket, put it in his armpit, and hyperextended his arm so that the broken bone would go back under the skin. Then I bandaged the wound and applied a sling with an elastic bandage to keep the arm in that position.

On one flight I encountered phosphorus wounds for the first time. I had never heard anything in my training about phosphorus until I got a man who had tracks all over him that kept spreading. From high school

chemistry I remembered that phosphorus burns only in the presence of air. And I wondered how the hell I was going to stop this. So I smeared all those phosphorus burns with vaseline. That was one of my dilemmas. I had never encountered phosphorus burns before. But I guess I did the right thing.

On one of the Iwo Jima trips a Marine major came to me and said, "We have four Japanese Imperial Marine prisoners. I'm sending them back on your flight." The plane was already loaded. I went back to the major and said, "What does that mean?" He said I would have to have two guards for each prisoner. These Imperial Marines were 6 feet tall. They were the tallest Japanese I had ever seen. It meant that I would have to bump 12 patients who were already strapped into their litters and ready to go. I said, "Major, I can't do it. Can't the prisoners go on the next plane?" He said, "I've ordered you to take these men now." My reply was, "You go aboard and pick the 12 men that will have to be bumped." He then said, "Go ahead and go."

On those 6- to 8-hour flights we had canned turkey, C-rations, K-rations, canned butter, canned peanut butter, and fresh bread that was baked at Guam. I fed them from the cans or gave them sliced turkey sandwiches. We also had a lot of juices in huge GI cans.

As for the whole blood, it was in a box lined with what looked like fiberglass for insulation. I had qualms about using it. The men had dogtags which indicated blood type, but there was no designation whether it was positive or negative. I only remember giving three units of blood because the two patients to whom I gave the blood were hemorrhaging badly and it appeared they wouldn't make it, and they didn't. I had my heart in my





Fledgling flight nurses learn lifesaving in the pool at NAS Alameda. Demonstrating the cross chest carry of "patients" are LTJG Stella Makar (right) and ENS Norma Harrison. "Victims" are ENS Patty Freeburger (right) and ENS Betty Markell.

mouth. They didn't die because of the blood. Giving the wrong + or - blood type does not cause an immediate reaction but could cause problems in the future if one needs a transfusion later in life.

Those two patients and a third marine were the only ones I lost in my few trips and resulted from a single event. While we were on the ground loading patients, a Zero came over. I heard a terrible noise and chatter. I was away from the tent at the time and out of the plane, possibly on a hill not far from where we had landed. The plane strafed the tent holding the patients we were about to evacuate. A bullet also pierced our wing tank which did not explode because it was full and there were no fumes to ignite. It's fortunate that it wasn't a tracer round.

We were detained there for many hours until that hole could be repaired. I stayed on the plane with the men during that time never thinking that another Zero could come by and strafe the plane, and none ever did.

They loaded all the patients on the plane right after the attack, so when I had to evaluate them on the plane, three were in very bad shape. They had been wounded again as they lay in the tent. They were put on the plane during the confusion which followed the strafing of the tent. Triage had been practiced until this incident.

One was an abdominal evisceration. Another had a severe head injury. Part of the man's skull was gone and his brain was exposed. The third had a sucking chest wound. I turned that man over and could see the exit wound. He was bleeding profusely. I

knew his pleural cavity was filling with blood so I turned him on the side that was bleeding in an effort to keep the lung that wasn't affected, possibly aerating. These were real quick decisions. I had covered both the entrance and exit wounds with just adhesive tape in a futile attempt to stop the loss of pleural air.

On the way back to Guam the pilot came back and said that because of very strong head winds we would have to jettison something. I told him that the only thing I had to dump was the very heavy medicine cabinet with the whole blood in it. So we just pushed it out of the plane. He then said that wouldn't be enough and we would have to land in Saipan. He asked me if there was anything else that we could get rid of and I told him I had three deceased marines, but I didn't want to push them out. I jettisoned most of the large cans of fruit juice.

On the way to Saipan I never covered their faces. When I made rounds and checked each of the marines and sailors, I stopped at their litters and spoke to them even though I knew that they were dead because I didn't want the others to know that anyone had been lost.

The morale of the men getting on the plane was sky high. They were in what I would call psychological shock and didn't complain about their wounds. They were just glad to get the hell out of that place.

When we landed in Saipan, the corpsman and I offloaded the three men. The pilot had radioed ahead for an ambulance from the base hospital but it hadn't arrived yet. So we put



One aspect of flight nurse training was caring for patients at extreme altitudes. Here an instructor adjusts oxygen mask in the "stratospheric" chamber at Alameda.

them under the shade of the wing and I stood there with the corpsman thinking that I wasn't finished. I had to do something. I asked him to bring me a glass of grapefruit juice. He went in the plane and poured a cup of juice. I had him take off his hat; I wasn't wearing one. Then I sprinkled the juice on them and said, "In the name of the Father, the Son, and the Holy Ghost" and baptized all three. Even though I wasn't particularly religious, it was something I had to do.

When the ambulance came and we got back on the plane I had to become an actress and probably deserved an Oscar. The morale of the men leaving

Iwo Jima was very high, as I said, and they had been joking back and forth. But when I got back on the plane at Saipan, there was dead silence. And I said, "Okay guys, next stop is Guam." They didn't answer me. It seems the middle row of patients could see what I had done through the portholes and they told everyone else. Then one of them called me over and said he wanted to tell me something. When I leaned over to listen he put his arms around me and gave me a kiss on my cheek. And then, one by one, each grasped my hand or pulled me to him. It was the most emotional thing I have ever experienced.

I have to say that on all the flights I felt so close to each of the patients. It wasn't a bonding; it wasn't love. It was a combination of apprehension for their disabilities, the fact that I was the professional responsible, and that they depended on me at a very critical time in their lives. They must have felt it too because as they deplaned almost every one gave me a kiss or a hug. Each one was very special to me.

One of them gave me a green bag and said, "I want you to have this." I said, "No, I don't need anything." But he insisted. I opened the bag and there were gold teeth and bloody, dried up Japanese ears inside. These were his souvenirs of Iwo Jima. I said they looked very interesting but I couldn't imagine using them and insisted that he keep his souvenirs. Those trophies were all he had to give me.

I cannot close without mentioning my great admiration for the pilots who flew us safely into a very dangerous area, under fire, and the medics who risked their lives by transporting the wounded to the beach area. They must have done this in the midst of hand to hand combat! They deserve to be called heroes, in the true sense. I must also mention the aircraft mechanics who kept us flying. My only fear during my service was just after VJ Day when the mechanics were starting to be mustered out.

*Kathryn Van Wagner married after the war. Mrs. Pribram remained in the Reserves until 1951 and resigned in Germany, where her husband was assigned as an Army officer.—JKH*



# Navy Medicine's Future in the Workplace

LCDR J.N. Hudson, MSC, USN

Admiral Mike Boorda, Chief of Naval Operations, recently handed down new physical readiness guidelines. Required fitness stresses the importance of good health. Keeping the fleet healthy is the first priority of Navy medicine. However, as Navy medicine undergoes downsizing and budget cuts, maintaining the high quality of care to the fleet becomes more difficult. Adapting to the changes that are inevitable will test the medical system and its leadership.

Perhaps because of these changes, Navy medicine has the opportunity to be innovative, cut costs, and maintain the quality of care. Serving the future of Navy medicine can be as simple as serving the sailor today. Where better to serve the sailor than in the workplace?

## Navy Medicine Today

Navy medicine has all the elements in line and is taking a proactive stance on the health of the sailor and civilian in the workplace. The Navy has been aware of worker-related injury and illness for many years and has been working through the Navy Occupational Safety and Health (NAVOSH) programs to prevent and reduce workplace injury and improve the workplace environment.(1)

The Chief of the Bureau of Medicine and Surgery, distributed a letter in January 1992 stating the goals, achievements, and challenges facing NAVOSH programs. Since fiscal year 1985, a Navywide initiative has reduced occupational injury by more than 23 percent. Yet as the frequency of injury and the lost man-hours decline, the average compensation cost

continues to increase. The average injury cost per case in 1985 was \$6,296. In 1992 this cost increased more than 100 percent to \$12,825 per case. The cost of health care is rising, and the Navy is not immune to health care cost increases.(1)

## Evolution of Health Promotion

Wellness/health programs have taken on many shapes in the past 20 years, especially in the workplace. First came the no smoking policies that had more to do with worker safety than health promotion. Second, the programs began to specify preventable health risks such as high blood pressure, cigarette smoking, and obesity. The third step was identifying the behavioral aspects which put employees at greater risk. Comprehensive multiple-risk programs were tak-

ing shape. Now, wellness in the workplace has gone even one step further. Health promotion has broadened its scope to include disease care, prevention, and health improvement in the private sector.(2)

Why choose this more comprehensive approach? The answer is simple: health care costs continue to rise. Effective, comprehensive health programs eliminate overlapping personnel and material costs. Integrating health promotion with industrial hygiene, safety, and occupational health can heighten awareness and reduce duplication in areas such as ergonomics of the workplace and medical surveillance programs. Corporate America uses the comprehensive approach to health in order to decrease operating costs; keep their employees happy, loyal, and productive; and provide a competitive edge in benefits so they can recruit only the best personnel.(3) The Navy has the obligation and resources to do the same.

### Federal Law Mandates a Healthy Workplace

The Congress was the first to push occupational safety and health via various laws. The catalyst for current occupational guidelines is the Occupational Safety and Health Act (OSHA) of 1970. OSHA gave the American worker the assurances to provide "safe and healthful working conditions and to preserve our human resources."(4)

On the health promotion side of the healthy workplace, while not yet mandated by law, there are federal agencies that place health promotion as a major issue among their priorities. The *Healthy People 2000: National Health Promotion and Disease Prevention Objectives for the Year 2000* released by the U.S. Department of Health and Human Services in 1990

**Table 1**  
**Components of a Comprehensive Wellness Program**

Program Components	Examples of Procedures	Naval Hospital Departments
1. Screening	Blood pressure, pap smear	Occupational Medicine, Dental, Medical, OB/GYN, Sick Call, Family Practice
2. Personal Assessment	Stress level, diet, etc.	PFT Coordinator, Dietitian, Health Promotion
3. Worksite Analysis	Hazards, process, equipment, injury, and illness trends	Industrial Hygiene, Safety, Occupational Medicine, Risk Assessment (QI/QA Coordinator)
4. Education and Training	Lectures, film, demonstrations	Training and Education, Industrial Hygiene
5. Hazard Prevention and Control	Engineering techniques, safe work procedures, personal protective equipment, reduce exposure times	Industrial Hygiene, Safety
6. Behavior Changes	Smoking cessation, weight loss, stress management	Mental Health, Health Promotions, Training and Education, Alcohol/Drug Rehabilitation (ARD)
7. Motivation and Incentives	Time off, pay bonus, healthier cafeteria food	PFT Coordinator, Food Services, Awards Coordinator
8. Counseling and Support	Individualized programs, information, and encouragement	Social Work, Mental Health, ARD
9. Followup and Periodic Surveys	Evaluation of effectiveness, routine job hazard analysis	Administration, Industrial Hygiene, Navy Inspectors
10. Support	Support groups	Mental Health, Health Promotions, Family Services

outlined 22 priority areas.(5) Twenty-one of these priorities were grouped into three broad categories. These categories were Health Promotion, Health Protection, and Preventive Medicine. The improvement of preventive medical care was also listed as a part of the health benefits of President Bill Clinton's proposed Health Security Act.(6)

### On the Job Health

The Navy's budget is shrinking.(7) A comprehensive approach to health care is cost-effective.(3) After all, the major portion of daily living is at work, whether on land or at sea. We are constantly faced with a work environment that may contain a "host of real or potential hazards." Noise, heat, vibration, radiation, repetitive



motion, improper equipment, toxins, and stress from job demands are among just a few of the health risks.(8)

The workplace is the natural foundation for a comprehensive health program with:

- convenient access to workers,
- organizational structures in place to support the program,
- a staff dedicated to the health of the workers, and
- readily available peer support.(9)

Basic assessments need to be conducted in relation to the worker and the workplace. The worksite assessment by the industrial hygienist must be made to determine the hazard potential. The industrial hygienist performs surveys of the workplace in "the anticipation, recognition, evaluation, and control of those environmental factors . . . which may cause sickness, impaired health and well-being."(10) The occupational health physician performs the current health and health history evaluation of the worker. The industrial hygienist provides the quantitative evaluation of the workplace to the physician. Without the workplace survey, determining the cause of illnesses and providing appropriate medical surveillance would be at best a simple guess. Together their mission is to protect the health of the worker on the job.(11)

### TQL and the Healthy Workplace

Integrating the resources of many departments is essential to a healthy workplace.(3) Training and education are integral to any total quality management safety and health program. All injuries are preventable, and Dr. Deming, who formulated Total Quality Management, i.e., Total Quality Leadership, places great emphasis on training. New personnel should be provided with a mentor to properly orient them to the safety, health, and quality systems. Training

can make the basic difference between a safe and an unsafe worker. Increased training and education in safety and health give workers the tools to recognize hazards and the consequences of those hazards.(12)

At first an open forum such as a Quality Circle could provide ideas and communication, essential basic ingredients. The Quality Circle should involve all departments related to the healthy workplace such as: occupational health, industrial hygiene, education and training, administration, psychology, preventive medicine, food management, and health promotion. The Quality Circle would outline points of impact to the worker and the workplace. These impact points would be evaluated to determine overlapping resources and manpower.(3,12)

### Merging Health Prevention, Protection, and Promotion

The Quality Circle will find many areas to be streamlined. Table 1 outlines the merger of both occupational safety and health programs and corporate health programs in column one. It highlights work examples of each program component in column two. (13,14) Column three lists naval hospital departments currently doing those tasks in column two per naval instructions.

### Conclusion

The preventive cost of health care is proving to be cheaper than the curative cost. The combination of health protection and health promotion strives toward a holistic approach to medicine. This preventive emphasis in Navy medicine could be the answer to reducing health care costs and further improving the quality of patient care in the 21st century.

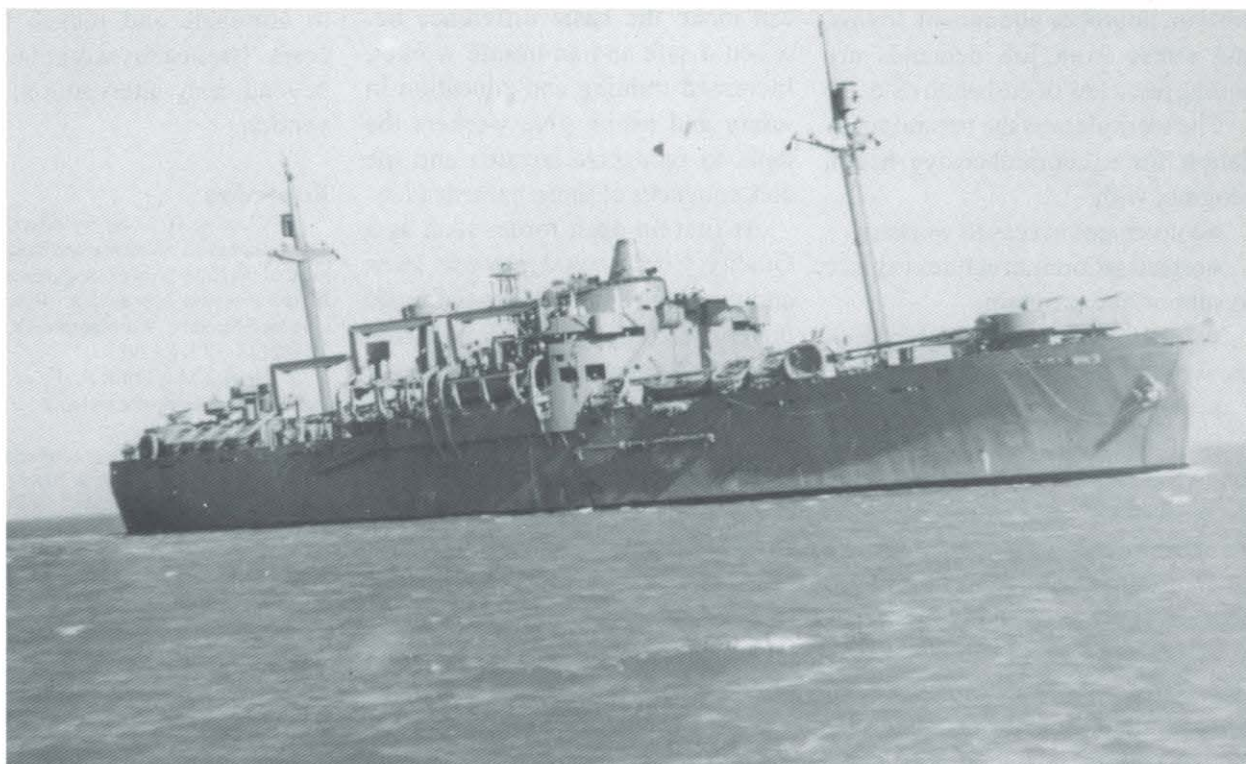
Every medical treatment facility stresses early intervention as a means

to eliminate and reduce treatment costs. The healthy workplace is a step beyond early intervention; it is prevention.

### References

1. Cunnion O. Letter by direction from the Chief, Bureau of Medicine and Surgery, Department of the Navy. *Navy Occupational Safety and Health Program Information*. Bureau of Medicine and Surgery, Washington, DC. Ser 2442/3U762115, 12 Jan 1992.
2. Heirich MA, Erfurt JC, Foote A. The core technology of work-site wellness. *J Occup Med*. 1992;34:627-637.
3. Smith RB. Wellness administrators working to prove programs cost-effective. *Occup Health Saf*. October 1990:100-104.
4. Clayton GD. The industrial environment—its evaluation & control. In: National Institute for Occupational Safety and Health. *Introduction*. Washington, DC: U.S. Department of Health, Education, and Welfare; 1973:1-5.
5. U.S. Department of Health and Human Services. *Healthy People 2000: National Health Promotion and Disease Prevention Objectives for the Year 2000*. Washington, DC: U.S. Government Printing Office; 1990.
6. Connell C. Summary of Clinton Plan. *Pacific Stars and Stripes*. Sept 24, 1993:4.
7. Kelso FB III, Mundy CE Jr. The naval service is joint. *Proceedings*. 1993;119(5):45-46.
8. Cohen A, Smith MJ, Anger WK. Managing health promotion in the workplace: guidelines for implementation and evaluation. In: Parkinson RS, ed. *Self-Protective Measures Against Workplace Hazards*. Palo Alto, CA: Mayfield Publishing Co; 1982:272-287. (Reprinted from *J Saf Res*. Fall 1979.)
9. Cohen A, Murphy L. Health promotion indicators and actions. In: Kar SB, ed. *Indicators of Health Promotion Behaviors in the Workplace*. New York, NY: Springer Publishing Co; 1989:249-270.
10. Olshifski JB. Fundamentals of industrial hygiene. In: Plog B, ed. *Overview of Industrial Hygiene*. Chicago, IL: National Safety Council; 1988:3-28.
11. Dinman BD. The industrial environment—its evaluation & control. In: National Institute for Occupational Safety and Health. *Medical Aspects of the Occupational Environment*. Washington, DC: U.S. Department of Health, Education, and Welfare; 1973:197-205.
12. Roughton J. Integrating a total quality management system into safety and health programs. *Am Soc Saf Eng*. 1993:32-37.
13. Anderson RC, Anderson KE. Organization and planning of the corporate wellness program. *Profes Saf*. 1988:13-16.
14. Stanevich RS, Stanevich RL. Guidelines for an occupational safety and health program. *AAOHN J*. 1989;37:205-214. □

LCDR Hudson, is stationed at the U.S. Naval Hospital, Okinawa.



USS  
*Rixey*  
in  
1943



# USS *Rixey* and the APH Class

Steven M. Dunn

During World War II, a unique class of ships played a key part in winning the Pacific war. The three ships that comprised the Tryon class were *Tryon* (APH-1), *Pinkney* (APH-2), and *Rixey* (APH-3). Designed for civilian purposes, these vessels were taken over by the federal government and converted into troop transports. Once having ferried men to the Pacific theater, their specially designed and equipped casu-

alty care facilities enabled embarked medical staffs to render both emergency and, in some cases, definitive casualty care.

These “not quite hospital ships” were laid down by Moore Drydock Company at Oakland, CA, in 1941 for the Alcoa Steamship Company. Specially designed for the West Indies Bauxite run, they were intended to be the answer to the growing demand for luxury passenger accommodations on





A patient is hoisted from an LCP(R) to *Rixey*.

freighters. Each ship was to carry 102 passengers in spacious accommodations designed for tropical cruising. These included a swimming pool and beach deck, sports and sun decks, glass-enclosed promenades, and a "Great Hall" (lounge) two decks high with tall windows facing aft to the veranda deck. Adjoining were cocktail lounges and library and passenger staterooms with private baths and showers. Despite these ample appointments, the ships were to have over 300,000 cubic feet of cargo space.

The three vessels were to be named *Alcoa Courier*, *Alcoa Corsair*, and *Alcoa Cruiser*. All were modified C-2 hulls driven by late model C-3 General Electric geared turbines instead of the conventional C-2 engines. Generating 8,500 horsepower, the powerplants gave each ship a service speed of 20 knots.

The class had a unique silhouette with clipper bow, raking masts, terraced amidship deckhouse overhanging the hull, and a small tapered funnel. Displacing 11,745 tons, each ship had an overall length of 450 feet

with a beam of 62 feet. The cruising radius was 7,500 nautical miles.

After the bombing of Pearl Harbor, the Navy took over the three ships and renamed them, two for former Surgeons General of the Navy—James Tryon and Presley Rixey—and Ninian Pinkney, Civil War surgeon of the fleet to ADM David Porter's squadron and commanding officer of *Red Rover*, the Navy's first hospital ship. RADM Rixey also served as personal physician to Presidents McKinley and Theodore Roosevelt.

Following the Navy's takeover of the ships, they were converted from their intended civilian use to their new role as evacuation transports. Their holds became berthing compartments and the fancy swimming pools, two operating rooms. Doctors took over some of the passenger quarters; others were turned into hospital wards. Workman removed lifeboats and replaced them with 12 LCP(R) landing craft and life rafts to accommodate the 1,200 combat troops they could carry. The crew averaged 450 officers and men with a medical staff

of 10 physicians, 1 to 2 dentists, and 54 Hospital Corps personnel.

With medical facilities comparable to those of a white-hulled hospital ship, but not protected under the Geneva Accords, these experimental APHs were painted gray like all other combatant ships and carried armament that included a 5-inch 38, four 3-inch 50s, and thirteen single 20mm mounts.

A confidential letter from the Vice Chief of Naval Operations dated 8 Sept 1942 concerned capacities and characteristics of APHs. The VCNO addressed misconceptions as to the intended employment of the new evacuation transports because little if any information about them had heretofore been officially announced. The letter went on to state that the subject vessels would be utilized as normal convoy transports (APs) until such time as the evacuation of wounded would be required from outlying bases. The ships would then be redesignated (APHs).

That was their intended use and that is how *Rixey* operated for the first 14 months of her service moving about the South Pacific between the Solomon Islands, New Hebrides, New Caledonia, and New Zealand. *Rixey* evacuated patients from advance areas to the mobile and base hospitals at Noumea, Auckland, and Wellington. Because of the extra medical facilities installed, she also was able to take on passengers, service units, survivors, and prisoners of war.

This is how these ships were used until mid-1944 when *Rixey* and *Tryon* saw their first combat duty in the Marianas, *Pinkney* at Peleliu.

*Rixey* joined the 5th Amphibious Forces as part of Task Group 53.1,



**Left:** A patient leaves USS *Pinkney* for further treatment at a base hospital. **Opposite page:** Stern of *Rixey* in 1945.



Transport Division 24. She embarked units of the Third Marine Division and stood in reserve for the invasion of Saipan. On 21 July 1944, after spending 52 days aboard, her marines landed on the Asan beachhead on Guam. Soon the small landing craft—amtracs and DUKWs—returned to the ship filled with wounded and dying men from the beaches. Her commanding officer then proceeded to bring the ship closer to the beach to shorten the distance the small craft would have to travel. As the wounded came aboard *Rixey*, they received more than mere first aid. Medical personnel provided medical and sur-

gical care. Less serious cases were transferred to other ships for evacuation.

On the morning of 27 July, the Japanese shelled the Third Marine Division field hospital and later broke through the lines and attacked the facility, inflicting casualties upon the staff and patients and putting the hospital out of commission. As a result, *Rixey* received casualties directly from the beach and acted in the capacity of a field hospital. On this day alone, the APH took on an additional 354 casualties, with 532 remaining on board at the end of the day; seven patients died.

*Rixey* stayed close to the beaches of Guam for 9 days. From 21 to 29 July, the surgical staff performed 192 major operations and many more minor procedures without anesthesia. The surgeons operated for 36 hours straight at one point without rest. Whole blood transfusions numbered 42. During this 9-day period, *Rixey*'s medical personnel treated 830 casualties with but 23 dying from their wounds. For her work on Guam, the ship was commended and her CO received the Bronze Star.

The lessons learned at Guam proved to be an asset in later operations where *Rixey* landed her troops—



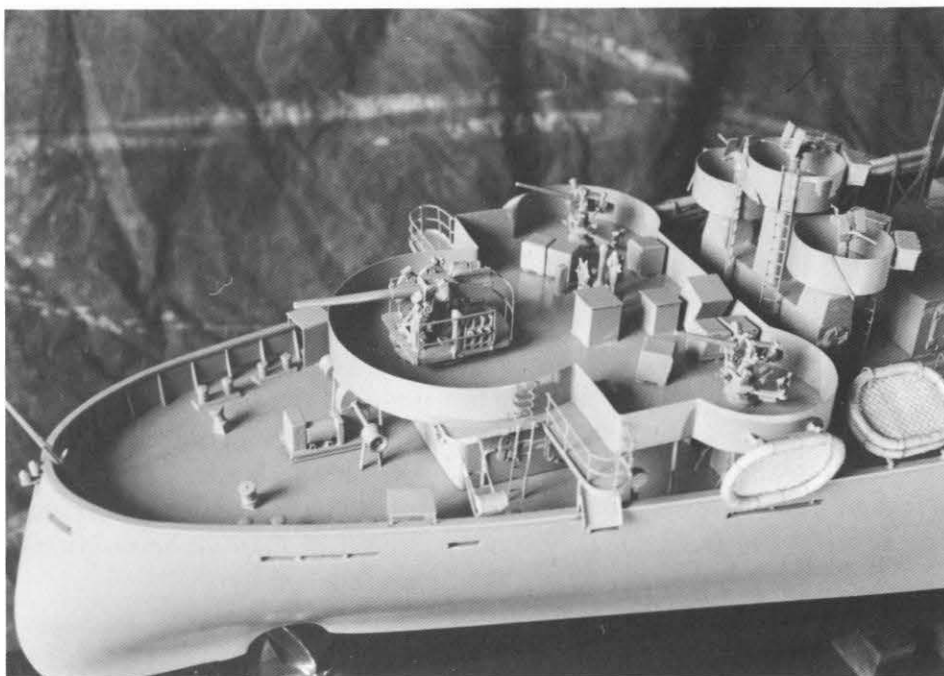
Scale model of *Rixey* shows some of her armament.

Leyte-Lingayen Gulf and Okinawa-Ie Shima. *Pinkney* and *Tryon* also continued in many landings and medical evacuations until the end of the war.

Over the past 6 years I have had the opportunity to meet many of those who served on board *Rixey*. I have been to the home of the executive officer in Richmond, VA, to Sacramento, CA, to meet one of her physicians, to Texas to see one of my father's closest shipmates. Last year we held a reunion in Chicago for the crew. Forty-nine former shipmates and many family members came together for the first time in 50 years.

What was so unique about the *Tryon* class? As an experiment in amphibious operations, the class was an unqualified success. The evidence is partially reflected in the numbers *Rixey* accumulated during her service. After returning to San Francisco, having left 27 months previously, she had traveled 160,000 miles, equivalent to six and a half times around the world and averaging a continuous speed of 7 knots during that time without a single major breakdown. *Rixey* acquired a reputation for being on the spot and always ready to go. During that period, she carried a total of 46,518 troops and 16,324 patients.

CDR Anthony DePalma, MC, USNR, an orthopedic surgeon aboard *Rixey*, now age 90, states that "The *Rixey* had a staff of medical and surgical officers and a body of corpsmen which were surpassed in excellence by no medical group afloat in the Pacific." He also recalls that on one trip to Pearl Harbor the chief medical officer from the Pearl Harbor Naval



Hospital met the ship at the dock. After transferring patients from the ship, the officer told DePalma, "Tony, when we receive patients from the *Rixey*, you guys do such a great job, all we have to do is pack them up and send them home." This achievement also reflected great credit on the ship's crew who navigated *Rixey* safely from port to port. Nor does DePalma underestimate the ample supplies made available for *Rixey*'s use, "especially the three Ps—plasma, penicillin, and plaster."

On 28 April 1945, during the Okinawa campaign, a kamikaze struck *Pinkney* in the aft end of the superstructure, penetrating four decks and burning out all hospital wards amidships. The attack killed 16 patients and 18 crewmembers. After temporary repairs she returned to San Francisco for repairs.

*Pinkney* won four battle stars; *Tryon*, six; and *Rixey*, four. All three ships were decommissioned in early 1946 and transferred to the War Department. Thereafter they were oper-

ated by the Army Transportation Service, then the Military Sea Transportation Service. Later transferred to the Maritime Administration National Defense Reserve Fleet, they were scrapped in 1970-71.

My father, SIC James R. Dunn, USNR, who died in 1967, served on *Rixey* from 1943 to 1945. The APHs have a proud history that a grateful nation and I will always remember.

### Bibliography

Averill F Jr. With caduceus and gun. *Our Navy*. March 1947.

*Dictionary of American Fighting Ships*. Volumes V, VI, VII. Government Printing Office; 1970, 1976, 1981.

Farber WS. Letters from Vice Chief of Naval Operations, 8 Sept 1942.

Interview by author of CDR Anthony DePalma, MC, USNR, orthopedic surgeon aboard USS *Rixey*.

Interview by author of ENS Robert H. Thawley, USNR, Third Division junior officer aboard USS *Rixey*.

Log Books and War Diaries from *Rixey*, *Pinkney*, and *Tryon*. □

Mr. Dunn resides in Park Ridge, IL, and is active in the USS *Rixey* organization.





# Navy Medicine

## March-April 1945

Joseph Frechette

Throughout March and April 1945 the Allies continued to hammer the Axis closer to defeat. The only ray of hope for Germany and Japan in these 2 months was the death of President Roosevelt, but his loss did not cause the Allies to waver.

Germany's situation was particularly bleak. The twisted regime of the Third Reich was clearly in its death throes. That fact was clear to everyone but its mad leader. Hitler still

dreamed of eventual victory or, failing that, a legacy of a devastated and thoroughly decimated Germany.

Early in March Anglo-American forces swept aside what remained of the *Wehrmacht* in the Rhineland and on the 7th captured the famous bridge at Remagen virtually intact.(1) The Rhineland campaign cost the Nazis approximately 250,000 POWs and 60,000 killed or wounded, effectively eliminating the German army in the west. After this defeat the *Wehrmacht*

had insufficient troops to defend the east bank of the Rhine.(2)

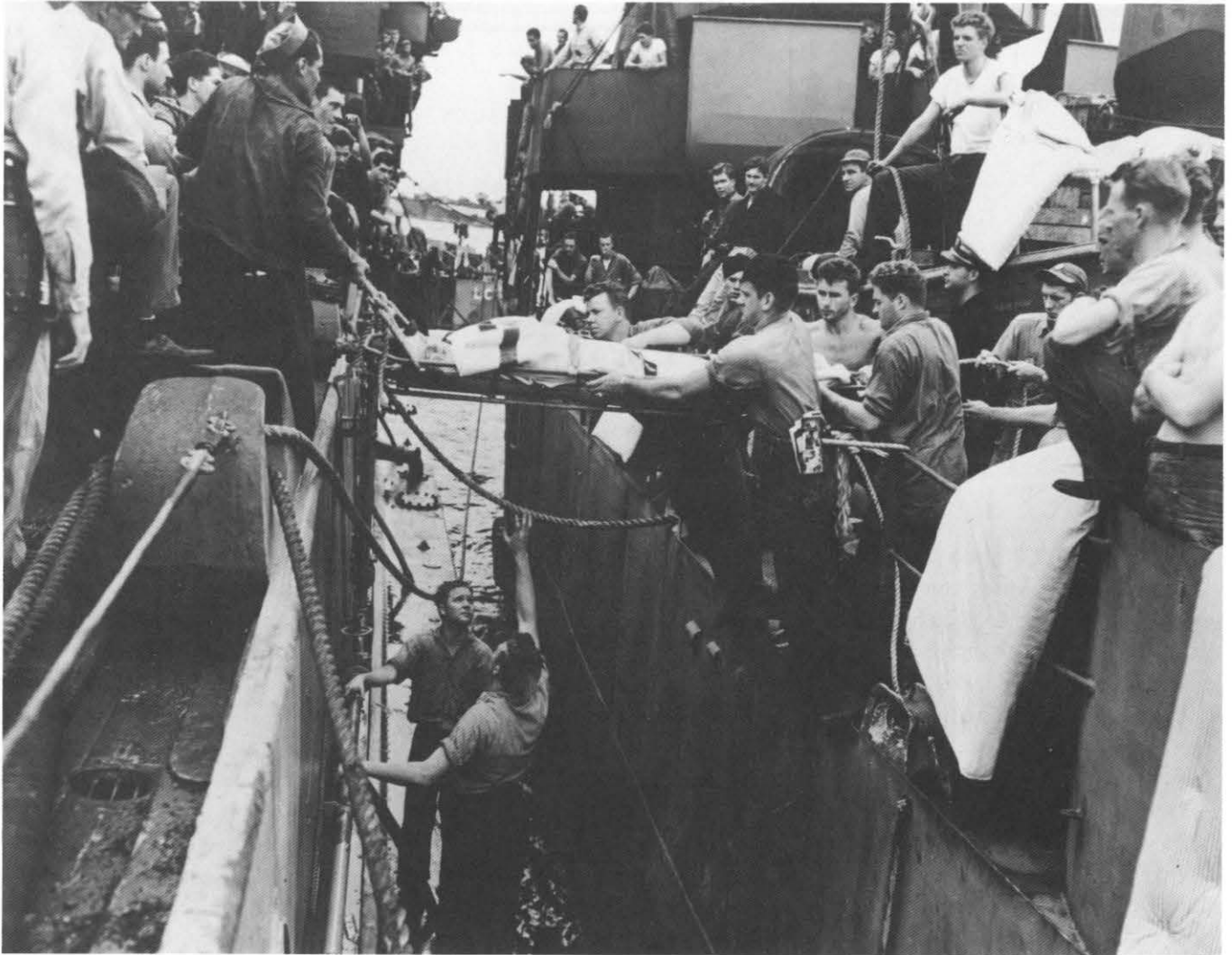
Eisenhower's forces advanced quickly after crossing the Rhine and reached the Elbe by the end of April. On 25 April American patrols met Russian detachments near Torgau, the first contact between the Eastern and Western Fronts.(3)

In the east the Soviets, having overrun East Prussia and Poland, advanced along the Oder-Niesse front and reached Berlin on 22 April. Eight days later Hitler shot himself and left his chosen successor, Admiral Doenitz, to face the bleak task of surrendering a completely prostrate nation.

The Japanese position was not yet so grim as that of Germany but it was rapidly deteriorating under Allied pressure. In March and April the Empire of the Sun had to contend with the Allied reconquest of Burma, continuing American operations on Luzon and Iwo Jima, the invasion of Okinawa, the near elimination of its merchant fleet at the hands of American submarines, the helplessness of what was left of the Imperial Navy,



Iwo Jima, 1 March 1945: Even in battle conditions, dental personnel do routine repairs and perform oral surgery.



and the B-29 incendiary attacks that were reducing the cities and industry of Japan to ashes.(4)

### Continuing Operations on Iwo Jima

By the beginning of March the Marines of the V Amphibious Corps had taken most of the island, pushing the Japanese defenders to the north and securing both airfields. Organized resistance ended on 11 March after American assaults had compressed the Japanese lines into the northeastern corner of the island and Iwo Jima was declared secure. However, resistance on the individual level did not cease entirely and several

weeks of mopping up lay ahead.(5) The fierce Japanese defense resulted in an average casualty rate of about 1,000 per day. Despite the high casualty rates suffered by the landing force, medical personnel were able to maintain efficient and coordinated evacuation procedures. By 24 March sea and air evacuation units had transported 17,677 wounded to safety.(6) APAs received most of the wounded from the surgically equipped LST(H)s that served as evacuation control ships at the beaches. Generally the APAs withdrew out to sea at night, occasionally operating close to shore under the cover of a smoke screen.(7)

The hospital ships stationed at Iwo

Jima were *Samaritan* (AH-10), *Solace* (AH-5), and *Bountiful* (AH-9). USS *Pinkney* (APH-2), a transport with advanced medical facilities, and USS *Ozark* (LSV-2) aided in the evacuation. By 21 March they had evacuated 4,879 patients on shuttle trips to Saipan and Guam.(8)

Air evacuation began on 3 March. Transports arrived with whole blood from Guam and returned to the Marianas loaded down with wounded. Originally planned only to handle 350 patients per week, the high casualty rate and a shortage of space aboard ship intensified operations; as many as 200 patients were evacuated by air each day. Before an evacuation plane



**Opposite page:** Wounded men from USS *Nevada* are transferred to an amphibious craft for further transfer to a Navy hospital ship. Eleven men were killed and 41 wounded when a Japanese suicide plane hit the battleship off Okinawa.

left the battle zone, an air evacuation unit consisting of two flight surgeons and several hospital corpsmen screened all patients. At times, aerial transport was the only way off the island due to rough sea and surf conditions or lack of facilities afloat.

Originally a 15-day evacuation policy had been envisioned but was discarded as simply impractical. Heavy casualties and the lack of space for convalescent camps did not permit the segregation of the wounded who could return to duty after 15 days from the more seriously wounded.(9)

Mercifully, there were no outbreaks of disease on Iwo Jima. The use of DDT and disposal of the dead as quickly as possible as well as the establishment of well policed latrines and galleys kept the insect population to a minimum. Additionally, all drinking water was either brought ashore or distilled on the beach.(10)

However, the absence of disease does lead to the shocking conclusion that nearly every one of the 24,891 American casualties, including the 6,821 killed, as well as almost the entire 21,000-man Japanese garrison suffered their injuries at the hands of another human being. These heavy casualties that would have been considered appalling for disease-infested jungle campaigns fought in the southern islands of the Pacific were indicative of the increasing ferocity of the war as the desperate Japanese fought viciously and to the death before the onslaught of the advancing Ameri-

cans.(11) Casualties among medical personnel were no less severe than those of the frontline troops on Iwo Jima. Division medical personnel suffered 25 percent casualties overall and in one division alone casualties exceeded 50 percent in each of six battalions.(12)

Recommendations following the operation included: the removal of medical officers from forward aid stations where they only had time to perform first aid and could be replaced by corpsmen, the training of replacement corpsmen more adequately for the front lines, provision of Weasels to be used as ambulances because of their all-terrain capability, the supply of serum albumin increased and that of plasma decreased due to albumin's efficacy and smaller bulk, the replacement of the cumbersome carbines issued the corpsmen with pistols, and an increase in the number of litter bearers. On a somewhat humorous note it was also recommended that stocks of medicinal brandy be increased sufficiently to provide each

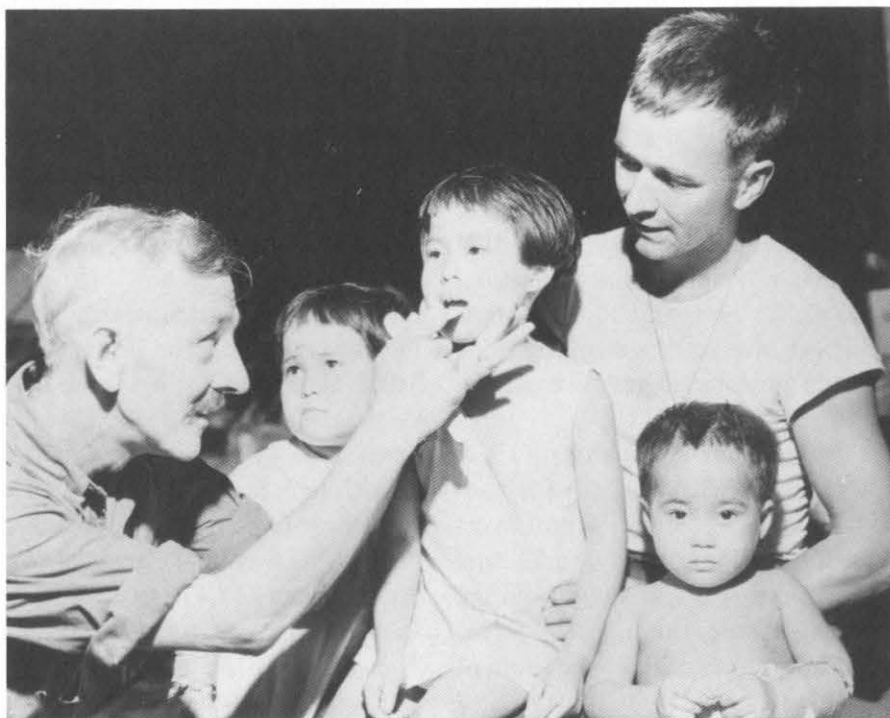
man ashore with one bottle each day.(13)

### Flight Nurses

On 3 March a young flight nurse, ENS Jane Kendeigh, made history on Iwo Jima. She was aboard the first plane to land for aerial evacuation on the recently secured airfield, becoming the first flight nurse in history to set foot upon a battlefield.(14)

Before landing, the R-4D transport plane she was aboard was forced to circle the airfield for 90 minutes while an offshore bombardment was in progress.(15) Described in a press release as "108 pounds of green eyed charm and efficiency," ENS Kendeigh was also the first flight nurse to land on Okinawa.

ENS Kendeigh was part of the first class of nurses that finished flight indoctrination 22 Jan 1945 at Alameda Naval Air Station, CA. Training lasted approximately 6 weeks and, after some transcontinental flights with wounded, the first nurses went to the Pacific, arriving on Guam in early February.



LCDR Linus Bittner and PHM3c Ford Barnes examine three orphans whose mother died at the Naval Military Government Hospital, Kushi, Okinawa.

Flight nurse Jane Kendeigh peers through the porthole of an R4D evacuation plane as CPhM Silas V. Sturtevant points out two Jima landmarks. ENS Kendeigh became the first Navy flight nurse to set foot on an active battlefield on 3 March 1945.

Each flight team consisted of one nurse and one corpsman. The flight surgeon assigned to each squadron and several pharmacists mates normally set up evacuation clearing stations next to the airfields where patients could be collected, screened, and prepared for flight. Once in the air the nurse was responsible for all patients aboard, and fed and cared for them with the aid of a corpsman.(16)

Flight nurses generally served on evacuation planes flying from battle areas to forward bases like Guam, from Guam to Pearl Harbor, and finally from Pearl Harbor back to the continental United States. Nurses were rotated between combat and non-combat flights and scheduled so that they did not exceed 100 hours of flight time per month.(17)



### Assault on Okinawa

On 1 April 1945, Easter Sunday, the newly formed Tenth Army under the command of LGEN Simon Bolivar Buckner hit the beach on Okinawa. The landing force included over 1,200 ships and 180,000 soldiers and marines rivaling the size of the Normandy invasion. Only 350 miles southwest of Japan and capable of supporting several airfields as well as the staging grounds for a large number of troops, Okinawa was to be a stepping stone for the envisioned invasion of the Japanese homeland.(18)

The Japanese commander, LGEN Ushijima's strategy precluded defending the beaches in the face of overwhelming American naval gunfire and air support. Instead he allowed the invaders ashore. The bulk of his forces remained entrenched in the south of the island based near the town of

Shuri. Ushijima expected that the unprecedented numbers of kamikaze aircraft assembled for the defense of the island would cripple the American fleet and he could then defeat the isolated invasion force in a decisive battle.(19)

By 30 April American forces had secured the northern and central portions of Okinawa as well as several of the surrounding islands. However they were now up against the incredibly strong Shuri Line in the south. Much hard fighting had to be done before Okinawa was declared secure on 21 June. The cost was frightful. The United States suffered 49,151 casualties of whom 12,520 were killed, 36 ships sunk and 368 damaged. The Japanese had 117,472 casualties, the vast majority of whom were killed. They also lost 7,830 aircraft.(20)

Due to the lack of opposition at the

landing beaches and the rapid seizure of airfields, the establishment of medical units ashore and the evacuation of casualties progressed smoothly in the opening weeks of the campaign. Plans called for the establishment of field hospitals for both the First and Sixth Marine Divisions. The III Amphibious corps received two evacuation hospitals to provide specialist care and assist in casualty evacuation. Eight LST(H)s were equipped as beach evacuation control vessels and six hospital ships, two APAs, and two APHs were on hand to receive casualties.(21)

The First Marine Division converted amphibious tractors into mobile operating rooms. They could be blacked out more easily during the night and allowed the surgeon to work in a well lit, sterile, armored operating theater.(22)



Evacuation was sometimes complicated by the primitive and bumpy nature of the roads, and amphibious DUKWs and Weasels had to be used to transport casualties over difficult terrain. Nevertheless, the Sixth Marine Division reported that transport time to a field hospital never exceeded 5 hours and normally was only 2 hours.(23)

Air evacuation began in early April. While hospital and transport ships evacuated the majority of the casualties, aerial transport accounted for the evacuation of more than 11,000 casualties ensuring that local hospitals were not overtaxed.(24)

The U.S. military government directed medical care and evacuation of the civilian population. Forward medical units gave emergency first aid to civilians and sent them to military government installations. There were many cases of self-inflicted and family inflicted wounds, mainly slashes to the throat, among women and children. Many civilians attempted suicide rather than risk torture by American forces. The merciful attention they received apparently astonished many of the victims.(25)

Throughout the early stages of the campaign Japanese kamikaze attacks inflicted the worst casualties the fleet had experienced in the entire war. The ships of the Fifth Fleet had prepared by dispersing medical supplies and dressing stations throughout individual ships. Moreover entire crews were now trained in casualty evacuation. However, these preparations could not cope with suicide attacks made directly against small ships. Medical personnel were often forced to render aid when and where they could since often there were no safe areas to establish dressing stations.(26)

Nor were hospital ships immune to attacks by kamikazes. A kamikaze

struck *Comfort* (AH-6) on 28 April killing 29 and wounding 33. On the same day *Pinkney* was also hit amidships resulting in 22 killed, 11 wounded, and 19 missing. Despite these attacks the hospital ships continued to carry out their mission and maintained regular shuttle trips to the Marianas.(27)

### The Haven Class

On 24 April 1945, *Tranquillity* (AH-14) was commissioned. She was the first of the *Haven* class which were to be the most modern and well-equipped hospital ships the Navy had yet acquired. The 15,000-ton ships were the first fully air-conditioned ships in the Navy and had a speed of 17 1/2 knots. There was space for 802 patients and a complement of 58 officers, 30 nurses, 24 chief petty officers, 230 crewmembers, and 238 hospital corpsmen.(28)

### References

- Esposito VJ. *The West Point Atlas of Foreign Wars*. Vol II, sec 2, map 165.
- Ibid., map 66.
- Ibid., maps 68-71.
- Van der Vat D. *The Pacific Campaign*, pp 371-389.
- Ibid., pp 380-381.
- History of the Medical Department of the United States Navy in World War II: A Narrative and Pictorial Volume*, pp 93-94.
- Ibid., p 98.
- Ibid., p 99.
- Ibid., p 100.
- U.S. Navy Medical Department Administrative History, 1941-1945: Narrative History*. Vol I, chap X:22.
- Cowdrey AE. *Fighting for Life*, pp 214-216.
- U.S. Navy Medical Department Administrative History, 1941-1945: Narrative History*. Vol I, chap XI:65.
- Action Report, CT-28, Iwo Jima Operation*. Annex King; *Action Report, 1st Battalion, 28th Marines, 5th Marine Division*. Annex King; *Action Report, 2nd Battalion, 28th Marines, 5th Marine Division*. Annex King; *Action Report, 3rd Battalion, 28th Marines, 5th Marine Division*. Annex King.
- DeWitt G: *First Flight Nurse on a Pacific Battlefield*, p 1.
- Ibid., p 3.
- Army and Navy Nurses in World War II*, p 26.
- Ibid., p 27.
- Spector R. *Eagle Against the Sun*, p 532.
- Ibid., p 533.
- Esposito VJ. *The West Point Atlas of Foreign Wars*. Vol II, sec 2, map 165.
- History of the Medical Department of the United States Navy in World War II: A Narrative and Pictorial Volume*, p 106.
- Ibid., p 110.
- Ibid., p 111.
- Ibid., p 113.
- U.S. Navy Medical Department Administrative History, 1941-1945: Narrative History*. Vol I, chap XII:18.
- The History of the Medical Department of the United States Navy in World War II: A Narrative and Pictorial Volume*, p 108.
- Ibid., p 109.
- Six hospital ships to join Navy soon. *New York Times*. April 19, 1945.

### Bibliography

- Action Report, CT-28, Iwo Jima Operation*. USMC Historical Center, Washington, DC.
- Action Report, 1st Battalion, 28th Marines, 5th Marine Division*. USMC Historical Center, Washington, DC.
- Action Report, 2nd Battalion, 28th Marines, 5th Marine Division*. USMC Historical Center, Washington, DC.
- Action Report, 3rd Battalion, 28th Marines, 5th Marine Division*. USMC Historical Center, Washington, DC.
- Action Report, 3rd Marine Division, Iwo Jima*. USMC Historical Center, Washington, DC.
- Army and Navy Nurses in World War II*. New York: Coro Inc.
- Cowdrey AE. *Fighting for Life*. New York: Free Press; 1994.
- DeWitt G. *First Flight Nurses on a Pacific Battlefield*. The Admiral Nimitz Foundation, Fredericksburg, TX; 1983.
- Esposito VJ. *The West Point Atlas of Foreign Wars*. Vol II, sec 2, map 165.
- Frederick A. New York: Praeger Inc; 1959.
- History of the Medical Department of the United States Navy in World War II: A Narrative and Pictorial Volume*. Washington, DC: Government Printing Office; 1953.
- Six hospital ships to join the Navy soon. *New York Times*. April 19, 1945.
- Spector R. *Eagle Against the Sun*. New York: Free Press; 1985.
- U.S. Navy Medical Department Administrative History, 1941-1945: Narrative History*. Vol I. Unpublished manuscripts. BUMED Archives.
- Van der Vat D. *The Pacific Campaign*. New York: Simon and Schuster; 1991. □

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**Angaur and Pelelieu Revisited**

I recently read with a degree of personal interest *Navy Medicine*, September-October 1994. If I remember correctly from the Navy film archives, the Marines landed on Red Beach, which is the eastern coast of Angaur. It is true that Army Rangers occupied the island and built an officer's club and skating rink. The most notable achievement, which I am confident still exists today, is a lovely white chapel. The Army garrison was maintained on the western side of the island.

Ms. Mitchum's article mentions that the Army "quickly overran the island." I suggest that this is somewhat controversial. In fact, a large number of Japanese soldiers were in hiding all across Angaur. While the focus of attack was moved to the larger island of Pelelieu, the number of Japanese soldiers on Angaur was grossly miscalculated. Furthermore, hiding places in the form of natural caves were plentiful. American forces on Angaur were continuously harassed by the guerrillas, thus making it very difficult for the Rangers to finally secure the island. The "shoot and evade" tactic used by the Japanese against our troops may have been more costly than reported. In response, U.S. Army patrols would take gasoline containers, or "jerry cans," ignite them, and throw them into caves to flush out the Japanese. I seem to recall that regularly during jungle trekking we came across rusted out jerry cans among the overgrowth.

It is also difficult to describe the terrain. Ms. Mitchum describes "solid rock bluffs and "rock cliffs." More accurately, it is fossilized coral outcroppings—very hard, sharp, and porous. At first glance, you would call it lava, rocky perhaps, but I think this term underrates how malevolent the terrain actually is. Skeletal remains of Japanese or other soldiers are frequently discovered all over the island. I am certain Pelelieu is the same.

Many of the Angaur natives were forced into slave labor to maintain production of the rich phosphorus mine on the island. I remember one native, Danny Moses, telling me he could still locate the cave where the Japanese imprisoned him (age 11) and his family. The islanders celebrate Angaur Day every year around October to recognize the end of their forced incarceration by the Japanese military. The relationship between the Palauans and the Japanese was very amiable up until the war. Many customs and slang terms (e.g. "benjo," "dai-job," etc.) have become part of the culture and Palauan language today. Most of the older Palauans still have mixed feelings regarding the Japanese influence in Palau.

For the future, the two islands remain rich in phosphorus. Whether they decide to invest in a phosphorus mining operation as did the island of Nauru, remains to be seen. Our strategic interests are a constant; the American people paid a heavy price in the Pacific war for the policy of leap-frogging from island to island. The airstrip we built on Angaur is still considered one of the best in the western Pacific.

Finally, I will never forget the day in 1976 when I landed on Pelelieu in a Boston Whaler. While Chief Lloyd narrated and pointed to the exact locations of that horror which only those marines could have known, I was absorbed by the length of the beachline, the decrepit pill box 50 yards away from me, and the overwhelming serenity I associated with the tranquil West Caroline Islands. I felt deceived, yet relieved by the insulation 32 years afforded me.

LCDR J.B. Canby IV, MSC, USN



## In Memoriam

CAPT **Charles W. Shilling**, MC (Ret.), a pioneer in submarine and diving medicine, died 23 Dec 1994. He was 93.

Upon receiving his medical degree from the University of Michigan in 1927, Dr. Shilling immediately joined the Navy and served until 1957. He was one of the first Navy medical officers to specialize in submarine and diving medicine, helping to define the specialty. One of his early accomplishments was developing submarine escape and rescue techniques. These procedures were used successfully to save lives during the USS *Squalus* rescue operation in 1939.

After this stint in research, he was assigned to the old submarine tender USS *Camden* in New London, sent to Harvard for graduate medical study in diving physiology, and then ordered to the submarine squadron at Coco Solo in the Panama Canal Zone. On return to the States, he worked at the Experimental Diving Unit for several years before being ordered back to New London as the base submarine medical officer.

During his years at New London, which included World War II, Dr. Shilling was extraordinarily active, taking on the assignments of SUBLANT Medical Officer, Base Submarine Medical Officer, and Officer-in-Charge of the Escape Training Tank. His duties included: traveling extensively to recruit and examine submarine applicants, running Navy schools to train prospective submarine medical officers and pharmacists mates, directing special training for submarine sonarmen and bridge lookouts, and supervising research in visual acuity, underwater sound, human factors, and many other operational areas. Moreover, he established and commanded a laboratory of submarine medical research, and authored innumerable scientific papers to report on these activities.

Several years after the war he went to Washington to become Director of Medical Research in the Office of the Surgeon General and Medical Officer to the Chief of Naval Research. Before his retirement in 1957 he was Medical Officer at the U.S. Naval Academy in Annapolis.

After leaving the Navy, he worked for the Atomic Energy Commission and taught at George Washington University before serving 12 years as Executive Secretary of the Undersea and Hyperbaric Medical Society.



Oil portrait of CAPT Shilling which hangs at the Charles W. Shilling Memorial Library at the Undersea and Hyperbaric Medical Society.

Dr. Shilling's work as Executive Secretary was instrumental in expanding the Society's membership from dozens to thousands. Dr. Shilling put the society on a sound financial footing, oversaw the delicate amalgamation of diving and medical treatment interests, and gathered library and archival material of undersea and high-pressure science. In his honor, on 23 October 1994, the Society unveiled an oil portrait of Dr. Shilling as part of the dedication of the new Charles W. Shilling Memorial Library.

# Naval Medical Research and Development Command Highlights

## ●Patent Issued on Controlled Risk Decompression Meter

Decompression sickness (DCS), sometimes called the bends, is a hazard to divers, aviators, or astronauts who are subject to a reduction in atmospheric pressure. Despite much research, the detailed causes of DCS remain unknown, although most experts feel that a central role is played by expanding gas bubbles in body tissues. Research sponsored by NMRDC has resulted in an invention and patent for a decompression meter. The wrist-carried visual display meter can sense the actual pressure exposure and tailor a schedule for a user undergoing decompression. An individual moving from a high-pressure environment to a low-pressure environment will receive optimal decompression advice on how to proceed in a minimum of time without exceeding a specific acceptable risk of suffering DCS. The meter can also generate additional information related to risk management, response to unplanned decompression emergencies, efficient gas management planning, medical preparations for diving contingencies, and other situations.

## ●Mechanisms Involved in the Pathogenesis of Alzheimer's Disease and Brain Injury

A hallmark of Alzheimer's disease (AD) is the formation of senile plaques and neurofibrillary tangles. One of the principal constituents of these is amyloid protein which is derived from amyloid precursor protein (APP). To date, no treatment has been developed to retard the accumulation of amyloid deposits which are thought to underlie the gradual decline in cognition which ultimately ends in death. Because many of the drugs developed to alleviate the symptoms associated with AD have met with very limited success, the major emphasis for intervention rests with understanding the mechanisms involved in the secretion and processing of APP and the deposition of amyloid in the brain. In a collaborative effort, researchers from the Naval Medical Research Institute, Bethesda, MD, the Bronx Veterans Administration, and the National Institutes of Health

demonstrated that APP secretion can be induced by underactivity of neurons that produce the neurotransmitter acetylcholine (ACh) in the brain. An interesting aspect of the findings was that APP production remained high for many months after brain ACh levels were reduced, an observation that bears directly on the suggestion that the underlying formation of amyloid in AD may actually begin 10-20 years before obvious symptomatology is present. Recent evidence also suggests that the increased secretion of APP may also be an early marker for brain cells that are injured through other means. This research effort continues as part of a recently awarded 3-year VA-DOD research grant.

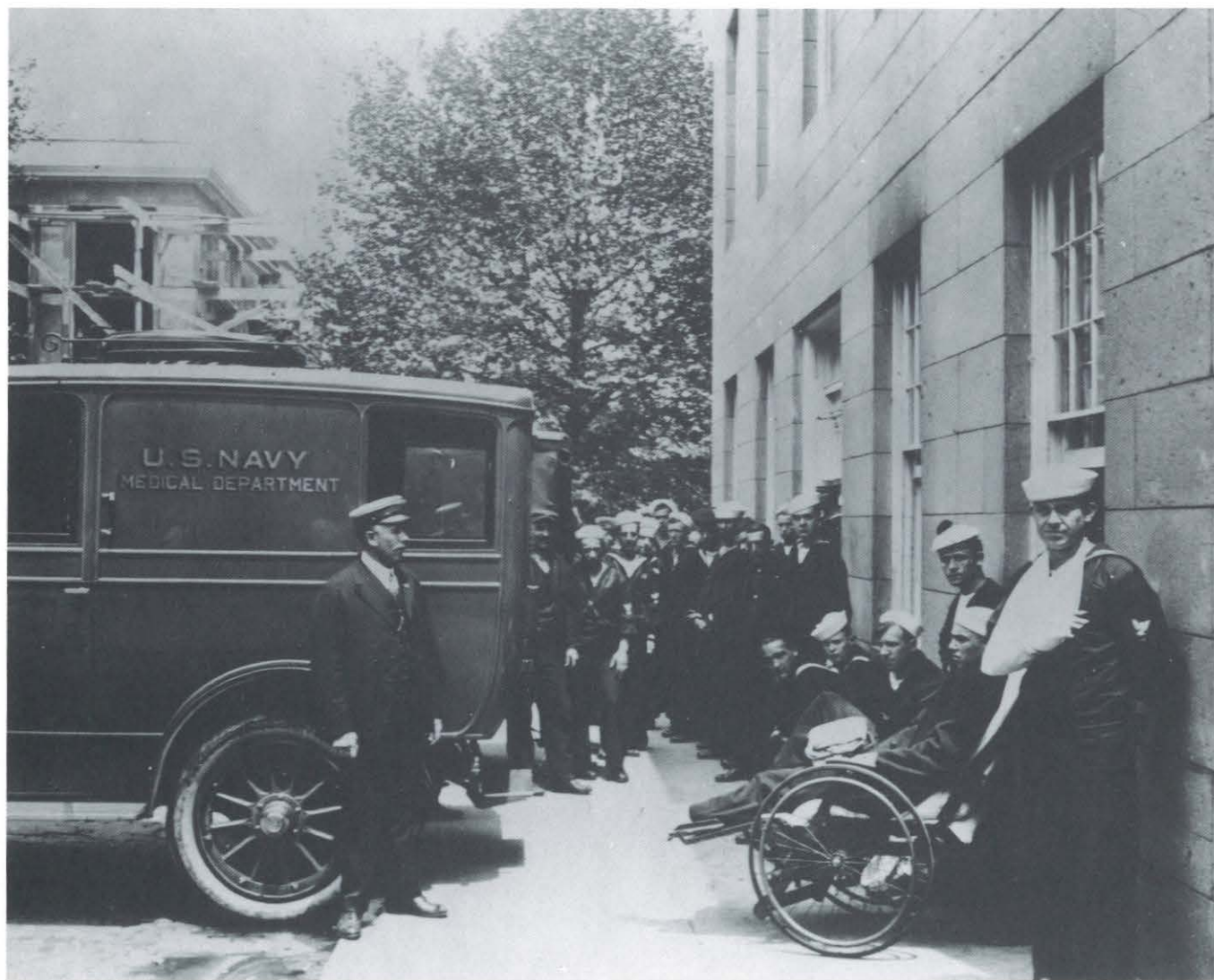
## ●Gender Differences in Emergency Shipboard Damage-Control Task Performance

All personnel assigned aboard U.S. Navy ships must be fully capable of performing sustained emergency damage-control tasks. The approach of this study is to modify the demands of the tasks by either redesigning the equipment, modifying procedures, or using mechanical aids. Researchers from the Naval Medical Research Institute, Bethesda, MD, will observe 100 active duty men and women performing a set of representative emergency shipboard damage-control tasks, analyze and modify the tasks to reduce the physical demands, measure physical and damage-control task performance, and compare performance before and after the ergonomic intervention. Products resulting from this research will optimize shipboard operational readiness, safety, and worker productivity. This work is part of the Defense Women's Health Research Program initiated by the Congress.

For more information on these and other research efforts by the Naval Medical Research and Development Command, contact CAPT T.J. Singer, MSC, Director, External Relations, at DSN 295-6182, Commercial 301-295-6182, FAX 301-295-4033, or E-mail [RDC03@NMRDC1.NMRDC.NNMC.NAVY.MIL](mailto:RDC03@NMRDC1.NMRDC.NNMC.NAVY.MIL).



## Navy Medicine circa 1922



Corpsmen and patients pose outside the Naval Hospital, Great Lakes, IL.

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